IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

REPLY BRIEF FOR THE APPELLANT

Ex parte Akihiro Chiba et al.

CO-CR-MO ALLOY FINE WIRE, MANUFACTURING METHOD THEREFOR, AND PLANAR BODY, TUBULAR BODY, STRANDED WIRE AND CABLE FORMED OF WIRE

Serial Number: 10/821,170
Filed: April 9, 2004
Appeal No.:
Group Art Unit: 1793
Examiner: Jessee R. Roe

Submitted herewith is an Appeal Brief with concurrent payment of the official fees for the Appeal Brief. Please charge any fee deficiencies required with respect to this paper, or overpayment to our Deposit Account No. 01-2300, referencing docket number **108421-00096**.

Respectfully submitted,

ARENT FOX LLP

Tarik M. Nabi
Registration No. 55,478

Customer No. 004372
ARENT FOX LLP
1050 Connecticut Avenue, N.W., Suite 400
Washington, D.C. 20036-5339
Tel: (202) 857-6000
Fax: (202) 857-6395

Date: March 6, 2009

THE HONORABLE BOARD OF PATENT APPEALS AND INTERFERENCES

In re application of:

Akihiko Chiba et al.	Group Art Unit: 1793
Application Serial No.: 10/821,170	Examiner: Jessee R. Roe
Filed: April 9, 2004	Attorney Docket No.: 108421.00096

For: CO-CR-MO ALLOY FINE WIRE, MANUFACTURING METHOD THEREFOR, AND PLANAR BODY, TUBULAR BODY, STRANDED WIRE AND CABLE FORMED OF WIRE

REPLY BRIEF ON APPEAL

Attorney for the Appellant:

Arent Fox LLP
1050 Connecticut Avenue, N.W.
Washington, D.C. 20036-5339

Telephone No.: 202-857-6000
Facsimile No.: 202-857-6395

Customer No.: **004372**

Date: March 6, 2009

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I. INTRODUCTION

This is a Reply Brief from an Examiner's Answer dated January 7, 2009, a Notice of Panel Decision from Pre-Appeal Brief Request for Review dated July 28, 2008, an Advisory Action dated June 13, 2008, and the final Office Action dated March 19, 2008. In these actions, claims 1-4, 11-16 and 23-26 were finally rejected under 35 U.S.C. §112, first paragraph as failing to comply with the written description requirement, claims 1-4, 11-16 and 23-26 were finally rejected under 35 U.S.C. § 103(a) as being unpatentable over United States Patent Number 5,891,191 to Stinson, and claims 1-4, 11-16 and 23-26 were finally rejected under 35 U.S.C. § 103(a) as being unpatentable over Stinson in view of JP 2002-363675 to Masahiko.

A Notice of Appeal and Pre-Appeal Brief Request for Review were timely filed on July 17, 2008, with the appropriate fees, and an Appeal Brief was filed on October 17, 2008. The Appellant is also timely filing this Reply Brief as the time period for filing a Reply Brief expires on March 7, 2009 (March 7 being a Saturday, the effective time period expires on March 9, 2009).

II. REAL PARTY IN INTEREST

The real party in interest is the Assignee, NHK SPRING CO. LTD., as the application is subject to an Assignment transferring the inventors' rights to the application to the Assignee. The Assignment was recorded in the U.S. Patent and Trademark Office on July 7, 2004 at Reel 015550, Frame 0216.

III. RELATED APPEALS AND INTERFERENCES

The appellant and appellant's legal representative are not aware of any related appeals or interferences that will directly affect, or be directly affected by, or have a bearing on the Board's decision in the pending appeal.

IV. STATUS OF CLAIMS

Claims 1-4, 11-16 and 23-26 are pending. Claims 5-10 and 17-22 have been withdrawn from consideration. Claims 1-4, 11-16 and 23-26 are finally rejected and are being appealed. A copy of the claims under appeal is provided in Appendix I attached hereto.

V. STATUS OF AMENDMENTS

No amendments have been filed subsequent to the rejection from which this appeal has been taken and contained in the Final Office Action dated March 19, 2008.

VI. SUMMARY OF THE CLAIMED SUBJECT MATTER ON APPEAL

The claimed subject matter of independent claim 1 is directed to a Co-Cr-Mo alloy fine wire for biomaterials consisting of 26 to 31 weight % of Cr (paragraph [0017] of Appellant's United States Patent Application Publication Number 2004/0221926); more than 8 weight % to 16 weight % of Mo (paragraph [0017]); and the remainder of Co and inevitable impurities, the alloy being Ni-free (paragraph [0008]); the wire having a diameter of 200 micrometers or less (paragraph [0017]) and a degree of roundness (minor diameter/major diameter) of lateral cross section of 0.6 or more (paragraph [0017]), and a uniform structure with a concentration ratio of maximum Mo concentration phase with respect to minimum Mo concentration phase of 1.8 or less when Mo concentration is measured at one or more arbitrarily selected cross sections of said fine wire (paragraph [0017]), wherein the wire was obtained by injecting the melted Co-Cr-Mo alloy from a nozzle to form a melted alloy jet and cooling and solidifying the melted alloy jet (paragraph [0020]).

The claimed subject matter of independent claim 15 is directed to a Co-Cr-Mo alloy fine wire for biomaterials, consisting of 26 to 31 weight % of Cr (paragraph [0017] of Appellant's United States Patent Application Publication Number 2004/0221926), more than 8 weight % to 16 weight % of Mo (paragraph [0017]); and the remainder of Co and inevitable impurities, the alloy being Ni-free (paragraph [0008]); the wire having a diameter of 200 micrometers or less and a degree of roundness (minor diameter/major diameter) of lateral cross section is 0.6 or more (paragraph [0017]), and wherein an internal structure is composed of either gamma phase (Co base solid solution of face-centered cubic system) or epsilon phase (Co base solid solution of

hexagonal close-packed system) only, or both of them only (paragraph [0035]), wherein the wire was obtained by injecting the melted Co-Cr-Mo alloy from a nozzle to form a melted alloy jet and cooling and solidifying the melted alloy jet (paragraph [0020]).

VII. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

Whether claims 1-4, 11-16 and 23-26 are unpatentable under 35 U.S.C. §112, first paragraph, as failing to satisfy the written description requirement. Whether claims 1-4, 11-16 and 23-26 are unpatentable under 35 U.S.C. §103(a) over United States Patent Number 5,891,191 to Stinson. Whether claims 1-4, 11-16 and 23-26 are unpatentable under 35 U.S.C. §103(a) over Stinson in view of JP 2002-363675 to Masahiko.

VIII. ARGUMENT

A. Grouping of Claims

The claims under appeal include independent claim 1 and dependent claims 2-4 and 11-14. The claims under appeal also include independent claim 15 and dependent claims 16 and 23-26. The claims do not necessarily all rise or fall together.

B. Claim Rejection under 35 U.S.C. § 112, First Paragraph

1. Statement of the Law

35 U.S.C. §112, first paragraph, recites:

> The Specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same, and shall set forth the best mode contemplated by the inventor of carrying out his invention.

During the evaluation of the requirements under 35 U.S.C. §112, first paragraph, the court in *In re Wertheim*, 541 F.2d 257, 191 U.S.P.Q. 90 (C.C.P.A. 1976) held that "[t]he primary consideration is *factual* and depends on the nature of the invention and the amount of knowledge imparted to those skilled in the art by the disclosure." *Wertheim*, 191 U.S.P.Q. at 91 (emphasis in original).

C. Claim Rejections under 35 U.S.C. §103 - Obviousness

1. Statement of the Law

Several basic factual inquiries must be made to determine obviousness or non-obviousness of patent application claims under 35 U.S.C. §103. These factual inquiries are set forth in Graham v. John Deere Co., 383 U.S. 1, 17, (1966):

> Under § 103, the scope and content of the prior art are to be determined; differences between the prior art and the claims at issue are to be ascertained; the level of ordinary skill in the pertinent art resolved. Against this backdrop, the obviousness or non-obviousness of the subject matter is determined.

Appellant respectfully submits that the specific factual inquiries set forth in *Graham* have not been considered or properly applied by the Examiner formulating the rejection of the pending claims. Particularly the differences between the prior art and the claims were not properly determined. As stated by the Federal Circuit in In re Ochiai, 37 U.S.P.Q. 2d 1127, 1131 (Fed. Cir. 1995):

> [t]he test of obviousness *vel non* is statutory. It requires that one compare the claim's subject matter as a whole with a prior art to which the subject matter pertains. 35 U.S.C. § 103.
> The inquiry is highly fact-specific by design.... When the references cited by the Examiner fail to establish a *prima facie* case of obviousness, the rejection is improper and will be overturned. In re Fine, 837 F.2d 1071, 1074, 5 U.S.P.Q. 2d 1596, 1598 (Fed. Cir. 1988). (Emphasis added.)

When rejecting claims under 35 U.S.C. §103, an Examiner bears an initial burden of presenting a *prima facie* case of obviousness. If an Examiner fails to establish a *prima facie* case, the rejection is improper and will be overturned. See: In re Rijckaert, 9 F.3d 1531, 1532, 28 U.S.P.Q. 2d. 1955 (Fed. Cir. 1993). "If examination.... does not produce a *prima facie* case of unpatentability, then without more the applicant is entitled to the grant of the patent." In re Oetiker, 977 F.2d 1443, 1445 – 1446, 24 U.S.P.Q. 2d. 1443, 1444 (Fed. Cir. 1992).

Appellant further notes that "[t]he mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also

suggests the desirability of the combination. *In re Mills*, 916 F.2d 680, 16 U.S.P.Q.2d 1430 (Fed. Cir. 1990)

Moreover, Appellant respectfully points out that it is a well settled axiom in U.S. Patent law that one cannot show non-obviousness by attacking references individually where the rejections are based on combinations of references. *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co., Inc.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). Appellant further notes that it is also well settled that "[t]he test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference.... Rather, the test is what the combined teachings of those references would have suggested to those of ordinary skill in the art." *In re Keller*, 642 F.2d 413, 425, 208 USPQ 871, 881 (CCPA 1981). See also *In re Sneed*, 710 F.2d 1544, 1550, 218 USPQ 385, 389 (Fed. Cir. 1983) ("[I]t is not necessary that the inventions of the references be physically combinable to render obvious the invention under review."); and *In re Nievelt*, 482 F.2d 965, 179 USPQ 224, 226 (CCPA 1973) ("Combining the teachings of references does not involve an ability to combine their specific structures."). See M.P.E.P. §2145 (III and IV).

Furthermore, Appellant notes that while obviousness can be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some rational reasons to do so, see *KSR Int'l Co. v. Teleflex Inc.*, 127 S. Ct. 1727, 1741 (2007), obviousness cannot be established by combining the teachings of the prior art to produce the claimed invention *absent some teaching, suggestion or incentive* supporting the combination *ACS Hospital Systems Inc. v. Montefiore Hospital*, 732 F. 2d 1572, 1577, 221 U.S.P.Q. 929, 933 (Fed. Cir., 1984.). Cited in *In re Geiger*,

815 F.2d at 688, 2 U.S.P.Q.2d at 1268 (Fed. Cir. 1987) (Emphasis added). See also *In re Lee*, (61 U.S.P.Q. 2d 1430, 277 F.3d 1338 (CAFC, 2002)). Moreover, obviousness cannot be established by combining references without also providing objective evidence of the motivating force that would impel one skilled in the art to do what the patent applicant has done (See *In Re Lee*, *infra*; see also *Ex Parte Levengood*, 28 U.S.P.Q.2d 1300, 1302 (Bd. Pat. App. & Inter. 1993)).

Additionally, it is well established that "[i]f an independent claim is non-obvious under 35 U.S.C. 103, then any claim depending therefrom is non-obvious." In re Fine, 837 F.2d 1071, 1076, 5 USPQ2d 1596 (Fed. Cir. 1988).

Appellant respectfully submits that the Examiner has not made a proper *prima facie* rejection under 35 U.S.C. §103(a), because the combination of prior art references cited fails to teach or suggest the present invention as recited in Claim 3 and because it would not be obvious to combine the cited references.

D. Appellant's Arguments

1. Claims 1-4, 11-16 and 23-26 were improperly rejected under 35 U.S.C. 112, first paragraph as failing to comply with the written description requirement.

The Appellant submits that the Examiner has not contemplated the liberal written description requirement of *Wertheim.* The Final Office Action alleges that the recitation of "the alloy being nickel-free" of claims 1 and 15 is not adequately described in the description. See Final Office Action, page 2, lines 7-11.

The Appellant respectfully submits that there is a recitation of "nickel-free fine wire" in paragraph [0008] of Appellant's United States Patent Application Publication Number 2004/0221926, and that the "superior corrosion resistance and wear

resistance" is indicated in paragraph [0008] as being the result of a nickel-free fine wire. The Summary of the Invention in paragraph [0010] indicates that the invention is made "in light of the above demands," the demands being that the alloy fine wire should be nickel-free. The Summary of the Invention of Appellant's United States Patent Application Publication Number 2004/0221926 indicates that the claimed alloy fine wire has "excellent biocompatibility" in paragraph [0010] and, in contrast, paragraph [0005] teaches that nickel is "allergenic" and that it is "preferred not to contain nickel in fine-wire used in the medical field."

In the section titled "Response to Argument" of the Examiner's Answer, the Examiner argues that "just because the Appellant is aware of the strong demand does not necessarily mean that the Appellant's specification conveys possession of a Ni-free fine wire". See Examiner's Answer, page 9, lines 16-18.

The Appellant submits in response that the issue is that of support for the feature of a nickel-free alloy, and in view of the aggregate recitations in paragraph [0010] that the invention is made "in light of the above demands," the demands being that the alloy fine wire should be **nickel-free**, that the "superior corrosion resistance and wear resistance" is indicated in paragraph [0008] as being the result of a nickel-free fine wire, that the claimed alloy fine wire has "excellent biocompatibility" in paragraph [0010] and, in contrast, that nickel is "allergenic" and that it is "preferred not to contain nickel in fine-wire used in the medical field" in paragraph [0005], provides a clear description of the need for a nickel-free alloy fine wire, as would be understood by the ordinary person skilled in the art.

The Examiner additionally argues that because the Appellant did not use the language "consisting of" with respect to the alloy being nickel-free in the Specification, "the presence of nickel in the cobalt-chromium-molybdenum alloy would not be precluded as indicated by the Appellant in [0010]" of the Specification "because [0005] allows for up to 5 weight percent nickel." See Examiner's Answer, page 9, line 21 – page 10, line 2.

The Appellant submits that the specific recitation of "nickel-free" specifically precludes the presence of any nickel, regardless of whether the language "consisting of" is included in the language of the claims. Even if the claims contain the clause "comprising," the fact that they also recite the alloy fine wire being nickel-free **precludes the presence of nickel**. In other words, any other features that may be present in the applied references **may not have nickel** as part of the alloy fine wire, even with the claims have the open-ended clause "comprising." As to the indication in paragraph [0005] of having nickel "up to 5%," as argued by the Examiner, this paragraph is part of the "Background of the Invention" section and relates **not** to the subject application but to the prior art, namely JP H10-43314. Paragraph [0005] specifically teaches that that "[H]owever, Ni is allergenic, and it is **preferred not to contain Ni in fine wire**" (emphasis added).

For at least the reasons above, the Appellant submits that the Specification does provide sufficient support for the feature of the alloy being nickel-free, and the recitation of "the alloy being nickel-free" of claims 1 and 15 is adequately described in the description. Therefore, the Appellant respectfully submits that independent claims 1 and 15 were improperly rejected under 35 U.S.C. § 112, first paragraph. Furthermore,

dependent claims 2-4, 11-14, 16 and 23-26 were also improperly rejected under 35 U.S.C. § 112, first paragraph.

2. *Claims 1-4, 11-16 and 23-26 were improperly rejected under 35 U.S.C. §103(a) as being unpatentable over Stinson.*

In the Final Office Action dated March 19, 2008, claims 1-4, 11-16 and 23-26 were rejected under 35 U.S.C. §103(a) as being unpatentable over United States Patent Number 5,891,191 to Stinson as previously set forth in the Office Action dated October 1, 2007.

The Final Office Action indicates that because Stinson teaches a ratio of nickel that is "less than about two weight percent nickel," that a percentage of zero percent nickel is part of this recitation. See Final Office Action, page 4, lines 10-16. In making this rejection, the Final Office Action cites to Stinson, col. 3, lines 42-45 and claim 2. However, Stinson teaches an alloy that includes nickel, as evidenced in the Abstract, in which the representative embodiment includes 1% nickel. Stinson teaches that "Nickel enhances the ductility of the alloys, improving its ability to be mechanically drawn or formed" (Col. 2, lines 3-6; Col. 1, lines 44-50), and thus teaches that the presence of nickel in an alloy is desirable. Stinson indicates that the invention relates to an improved implantable medical device comprised of a cobalt-chromium-molybdenum alloy containing less than about 5 weight percent nickel, or containing less than about 2 weight percent nickel (Col. 3, lines 31-44). Although "less than about" either 5 weight percent or 2 weight percent could be interpreted as including a nickel-free alloy, the teachings of Stinson must be read in light of the entirety of the Specification and the above-cited portion in particular, which teaches that the improvement over the

background art for Stinson is to decrease the level of nickel to less than 5 or less than 2 weight percent, but does not teach to eliminate nickel entirely because "Nickel enhances the ductility of the alloys" (Col. 2, lines 3-10). Thus, the Appellant respectfully submits that Stinson affirmatively teaches that Nickel is a beneficial component, and a rational understanding of this teaching is that Nickel should be present in Stinson's alloys. In light of the above-discussed teachings of Stinson, the reading of "less than 5 percent" or "less than 2 percent" by the ordinary person skilled in the art **cannot** include a nickel-free alloy. For this reason, Stinson fails to disclose or suggest an alloy that is nickel-free, and in fact teaches away from a nickel-free alloy, because Stinson teaches the beneficial aspects of having Nickel in an alloy.

In the Section titled "Response to Argument," the Examiner argues that "[D]isclosed examples and preferred embodiments do not constitute a teaching from a broader disclosure of non-preferred embodiments" and cites to MPEP 2123 II. See Examiners' Reply, page 12, lines 4-5. However, this section of this MPEP merely teaches that "[A] known or obvious composition does not become patentable simply because it has been described as somewhat inferior to some other product for the same use" and refers to *In re Gurley*, 27 F.3d 551, 554, 31 USPQ2d 1130, 1132 (Fed. Cir. 1994). The relevant issue in *In re Gurley* was whether a resin known to have better performance over a prior art resin is patentable. The Federal Circuit held that it was not, and indicated in another case that "the prior art's mere disclosure of more than one alternative does not constitute a teaching away from any of these alternatives **because such disclosure does not criticize, discredit, or otherwise discourage the solution claimed**..." (emphasis added). *In re Fulton*, 391 F.3d 1195, 1202, 73 USPQ2d 1141,

1146 (Fed. Cir. 2004). The current case is clearly distinguishable from the above two cases because the present application specifically indicates that nickel has a negative influence on the alloy fine wire. The Specification **does criticize, discredit and discourage** the use of nickel as part of the alloy fine wire. The presence of nickel as part of the alloy fine wire does not produce only a somewhat inferior product, it is clearly and unequivocally discouraged. Thus, *In re Gurley and In re Fulton* are not relevant to the current case. Because Stinson does teach that the presence of nickel as part of the alloy fine wire has a positive effect because it "enhances ductility of the alloys" (see col. 2, lines 3-10), the recited feature of an alloy fine wire being nickel-free cannot be obvious over the teachings of Stinson.

The Appellant also submits that Stinson teaches a content of molybdenum that is "between about 4-8 weight percent molybdenum" (Column 3, line 44). The Appellant submits that nowhere else in Stinson is there **any** teaching of a broader range, or of a higher range of molybdenum content. Accordingly, Stinson fails to teach having "more than 8 weight percent to 16 weight percent of molybdenum," as recited in independent claims 1 and 15. The Appellant submits that the higher range of the "more than 8 weight %" molybdenum also provides the unexpected result of a better corrosion and wear resistance, as indicated in paragraph [0006] of Appellant's Patent Application Publication Number 2004/0221926.

In the Section titled "Response to Argument," the Examiner argues that there is no showing of an unexpected result for the claimed range of Molybdenum. See Examiner's Answer, page 10, line 16 – page 11, line 3. However, the Appellant submits that paragraph [0006] of the Specification published in Patent Application Publication

Number 2004/0221926 provides support for an unexpected result by teaching that "by increasing the Mo concentration and homogenizing the structure, both corrosion resistance and wear resistance are improved outstandingly." Accordingly, obtaining a range of Mo of more than 8 percent is not obvious based on the teachings of Stinson.

With respect to the recitation in independent claims 1 and 15 of "a roundness of lateral cross section of 0.6 or more," the October 1, 2007, Office Action indicates that filaments #12 of the cobalt alloy are substantially homogeneous in cross section. See October 1, 2007, Office Action on page 3, lines 8-12. However, the Appellant respectfully submits that these teachings are relative to **concentrations** of molybdenum, chromium or cobalt, but are **not** relevant to a specific **geometric** attribute, namely, roundness, as recited in independent claims 1 and 15. There is no teaching anywhere in Stinson of a degree of roundness, *i.e.*, a ratio of a minor diameter over a major diameter. The feature of "degree of roundness" is erroneously construed by the Examiner to be equivalent to a concentration of the various components of the alloy. In fact, Stinson does not teach a degree of roundness of a lateral cross section of the wire being of 0.6 or more, as recited in independent claims 1 and 15.

In the Section titled "Response to Argument," the Examiner argues that Figure 3 of Stinson teaches "a cross-sectional view of one of the filaments and not...concentration of molybdenum, chromium, or cobalt and the composition of the filaments is substantially homogeneous." See Examiner's Answer, page 12, line 21 – page 13, line 2. The Appellant submits that this teaching in Stinson does not read on the specifically claimed feature of "a degree of roundness (minor diameter/major diameter) of lateral cross section of 0.6 or more," as recited in independent claims 1 and

15. Figure 3 of Stinson does **not** allow the ordinary person skilled in the art to ascertain that the ratio of the minor diameter of the wire over the major diameter is 0.6 or more, as claimed.

In the Section titled "Response to Argument," the Examiner argues that "the Applicant has not shown" that the various claimed features of degree of roundness, wire diameter or concentration ration of Mo "would perform differently from the prior art." See Examiner's Answer, page 13, lines 3-8. The Appellant submits that currently pending independent claims 1 and 15 are **device claims**, and as such, whether the claimed alloy fine wire performs differently or not from the alloy stent of Stinson is **irrelevant** to a determination of patentability of device claims 1 and 15.

For at least the reasons above, the Examiner has failed to establish a prima facie rejection of independent claims 1 and 15 over Stinson, which are therefore allowable over Stinson. Thus, independent claims 1 and 15 were improperly rejected under 35 U.S.C. §103(a).

Claims 2-4, 11-14, 16 and 23-26 depend from independent claims 1 and 15. Therefore, the Appellant respectfully submits that claims 2-4, 11-14, 16 and 23-26 were also improperly rejected under 35 U.S.C. §103(a) and are also patentable over Stinson.

3. Claims 1-4, 11-16 and 23-26 were improperly rejected under 35 U.S.C. §103(a) as being unpatentable over Stinson in view of Masahiko.

In the Final Office Action dated March 19, 2008, claims 1-4, 11-16 and 23-26 are rejected under 35 U.S.C. §103(a) as being unpatentable over United States Patent Number 5,891,191 to Stinson in view of JP 2002-363675 to Masahiko as previously set forth in the Office Action dated October 1, 2007.

As discussed above, the Examiner has failed to establish a prima facie rejection of independent claims 1 and 15 over Stinson.

In making this rejection and to cure Stinson's deficiency in disclosing or rendering obvious the feature of "more than 8 weight % to 16 weight % of Mo," the October 1, 2007, Office Action cites to Masahiko's Abstract to teach a higher concentration of Molybdenum of 6 to 12%. See October 1, 2007, Office Action, page 6, lines 4-6. The same Office Action also indicates that "[F]or other limitations of the instant claims, see discussion of Stinson." See October 1, 2007, Office Action, page 6, line 10.

The Appellant respectfully submits that there is no teaching in Masahiko of either the alloy being nickel-free, or of a degree of roundness of 0.6 or more. Accordingly, the Appellant respectfully submits that Masahiko fails to disclose, suggest or render obvious the features of the alloy being nickel-free and of a degree of roundness of 0.6 or more, as recited in independent claims 1 and 15.

In the Section titled "Response to Argument," the Examiner argues that "Masahiko...does not necessitate the presence of nickel in the alloy" and reiterated the above-discussed argument that "Appellant has not shown" that the claimed features "would perform differently" fro either Stinson of Masahiko. See Examiner's Answer, page 13, lines 17-22.

The Appellant submits that, assuming without admitting that Masahiko does not necessitate the presence of nickel, Masahiko still fails to cure the above-discussed deficiencies in Stinson in disclosing or rendering obvious a nickel-free alloy because Stinson does teach the presence of nickel in the alloy for the admitted positive advantages of nickel in increasing ductility. The Appellant also reiterates the above

argument that independent claims 1 and 15 are device claims, and as such, whether the claimed alloy fine wire performs differently or not from the alloy stent of Stinson or from the alloy of Masahiko is irrelevant to a determination of patentability of device claims 1 and 15.

For at least the reasons above, Masahiko fails to cure the above-discussed deficiencies in Stinson in disclosing or rendering obvious the features of independent claims 1 and 15. The Examiner has thus failed to establish a prima facie rejection of independent claims 1 and 15 over Stinson, which are therefore allowable over a combination of Stinson and Masahiko. Accordingly, independent claims 1 and 15 were improperly rejected under 35 U.S.C. §103(a).

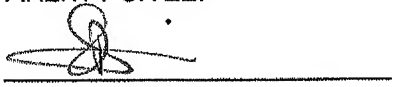
Claims 2-4, 11-14, 16 and 23-26 depend from independent claims 1 and 15. Therefore, the Appellant respectfully submits that claims 2-4, 11-14, 16 and 23-26 were also improperly rejected under 35 U.S.C. §103(a) and are also patentable over the combination of Stinson and Masahiko.

IX. CONCLUSION

Appellant respectfully submits that claims 1-4, 11-16 and 23-26 are not unpatentable under 35 U.S.C. § 112, second paragraph and under 35 U.S.C. § 103(a), and respectfully request the Honorable Board to reverse these rejections.

Respectfully submitted,

ARENT FOX LLP



Tarik M. Nabi
Registration No.: 55,478

X. APPENDIX I: COPY OF THE CLAIMS INVOLVED IN THE APPEAL

1. (Previously Presented) A Co-Cr-Mo alloy fine wire for biomaterials, consisting of: 26 to 31 weight % of Cr; more than 8 weight % to 16 weight % of Mo; and the remainder of Co and inevitable impurities, the alloy being Ni-free; the wire having a diameter of 200 micrometers or less and a degree of roundness (minor diameter/major diameter) of lateral cross section of 0.6 or more, and a uniform structure with a concentration ratio of maximum Mo concentration phase with respect to minimum Mo concentration phase of 1.8 or less when Mo concentration is measured at one or more arbitrarily selected cross sections of said fine wire,

wherein the wire was obtained by injecting the melted Co-Cr-Mo alloy from a nozzle to form a melted alloy jet and cooling and solidifying the melted alloy jet.

2. (Previously Presented) The Co-Cr-Mo alloy fine wire of claim 1, wherein the structure is uniform with the concentration ratio of maximum Co concentration phase to minimum Co concentration phase of 1.1 or less when Co concentration is measured at one or more arbitrarily selected cross sections of said fine wire.

3. (Previously Presented) The Co-Cr-Mo alloy fine wire of claim 1, wherein the structure is uniform with the concentration ratio of maximum Cr concentration phase to minimum Cr concentration phase of 1.1 or less when Cr concentration is measured at one or more arbitrarily selected cross sections of said fine wire.

4. (Original) The Co-Cr-Mo alloy fine wire of claim 1, wherein the roundness of lateral cross section is 0.7 or more.

5. (Withdrawn) A manufacturing method for Co-Cr-Mo alloy fine wire, the method comprising the steps of:

injecting a molten alloy comprising 26 to 31 weight % of Cr, 8 to 16 weight % of Mo, and the remainder of Co and inevitable impurities from a nozzle with an inner diameter of 200 micrometers or less to form a molten alloy jet; and

solidifying the molten alloy jet in a coolant layer formed along an inner circumference of a rotating cylindrical drum.

6. (Withdrawn) A manufacturing method for Co-Cr-Mo alloy fine wire, the method comprising the steps of:

injecting a molten alloy comprising 26 to 31 weight % of Cr, 8 to 16 weight % of Mo, and the remainder of Co and inevitable impurities from a nozzle of 200 micrometers or less in diameter to form a molten alloy jet; and

cooling and solidifying the molten alloy jet in cooling gas.

7. (Withdrawn) A manufacturing method for Co-Cr-Mo alloy fine wire, the method comprising the steps of:

injecting a molten alloy comprising 26 to 31 weight % of Cr, 8 to 16 weight % of Mo, and the remainder of Co and inevitable impurities from a nozzle of 200 micrometers or less in diameter to form a molten alloy jet;

feeding cooling gas into a tube collecting gas disposed in a manner so as to surround the falling path of the molten alloy jet to solidify the molten alloy jet; and

discharging the fine wire from the discharge part of the tube collecting gas to outside.

8. (Withdrawn) The manufacturing method for Co-Cr-Mo alloy fine wire of claim 6, wherein the cooling gas is a gas containing oxygen.

9. (Withdrawn) The manufacturing method for Co-Cr-Mo alloy fine wire of claim 6, wherein the cooling gas is composed of a first gas component comprising inert gas introduced into the tube collecting gas at a first position closer to the nozzle in the falling direction of the molten alloy jet, and a second gas component comprising oxidizing gas introduced into the tube collecting gas at a second position at lower side of the first position.

10. (Withdrawn) The manufacturing method for Co-Cr-Mo alloy fine wire of claim 9, wherein the first gas component is argon or helium, and the second gas component is oxygen or carbon dioxide.

11. (Original) A planar body formed by weaving, knitting or nonwoven processing of the Co-Cr-Mo alloy fine wire of claim 1.

12. (Original) A tubular body formed by weaving, knitting or nonwoven processing of the Co-Cr-Mo alloy fine wire of claim 1.

13. (Original) A stranded wire formed by processing of the Co-Cr-Mo alloy fine wire of claim 1.

14. (Original) A cable formed by processing of the Co-Cr-Mo alloy fine wire of claim 1.

15. (Previously Presented) A Co-Cr-Mo alloy fine wire for biomaterials, consisting of 26 to 31 weight % of Cr, more than 8 weight % to 16 weight % of Mo; and the remainder of Co and inevitable impurities, the alloy being Ni-free; the wire having a diameter of 200 micrometers or less and a degree of roundness (minor diameter/major

diameter) of lateral cross section is 0.6 or more, and wherein an internal structure is composed of either gamma phase (Co base solid solution of face-centered cubic system) or epsilon phase (Co base solid solution of hexagonal close-packed system) only, or both of them only,

wherein the wire was obtained by injecting the melted Co-Cr-Mo alloy from a nozzle to form a melted alloy jet and cooling and solidifying the melted alloy jet.

16. (Original) The Co-Cr-Mo alloy fine wire of claim 15, wherein the roundness of lateral cross section is 0.7 or more.

17. (Withdrawn) A manufacturing method for Co-Cr-Mo alloy fine wire, the method comprising the step of:

injecting a molten alloy comprising 26 to 31 weight % of Cr, 8 to 16 weight % of Mo, and the remainder of Co and inevitable impurities into a coolant layer formed along the inner circumference of a rotating cylindrical drum to obtain a fine wire of diameter of 200 micrometers or less, and roundness (minor diameter/major diameter) of lateral cross section of 0.6 or more, with an internal structure substantially composed of either gamma phase (Co base solid solution of face-centered cubic system) or epsilon phase (Co base solid solution of hexagonal close-packed system) only, or both of them only.

18. (Withdrawn) A manufacturing method for Co-Cr-Mo alloy fine wire, the method comprising the steps of:

injecting a molten alloy comprising 26 to 31 weight % of Cr, 8 to 16 weight % of Mo, and the remainder of Co and inevitable impurities from a nozzle of 200 micrometers or less in diameter; and

cooling and solidifying the injection jet in cooling gas to obtain a fine wire of diameter of 200 micrometers or less, and roundness (minor diameter/major diameter) of lateral cross section of 0.7 or more, with the internal structure substantially composed of either gamma phase (Co base solid solution of face-centered cubic system) or epsilon phase (Co base solid solution of hexagonal close-packed system) only, or both of them only.

19. (Withdrawn) A manufacturing method for Co-Cr-Mo alloy fine wire, the method comprising the steps of:

injecting downward a molten alloy comprising 26 to 31 weight % of Cr, 8 to 16 weight % of Mo, and the remainder of Co and inevitable impurities in falling state by a nozzle of 200 micrometers or less in diameter to form a molten alloy jet;

disposing a tube collecting gas so as to surround the falling path of the molten alloy jet;

feeding a cooling gas for solidifying the molten alloy jet into the tube collecting gas by a cooling gas feed means; and

discharging a fine wire obtained by solidification of the molten alloy jet to outside from the tube collecting gas by a discharge means;

thereby obtaining a fine wire of diameter of 200 micrometers or less, and roundness (minor diameter/major diameter) of lateral cross section of 0.7 or more, with the internal structure substantially composed of either gamma phase (Co base solid solution of face-centered cubic system) or epsilon phase (Co base solid solution of hexagonal close-packed system) only, or both of them only.

20. (Withdrawn) The manufacturing method for Co-Cr-Mo alloy fine wire of claim 18, wherein the cooling gas is a gas containing oxygen.

21. (Withdrawn) The manufacturing method for Co-Cr-Mo alloy fine wire of claim 19, wherein the cooling gas is composed of a first gas component comprising inert gas introduced into the tube collecting gas at a first position closer to the nozzle in the falling direction of the molten alloy jet, a second gas component comprising oxidizing gas introduced into the tube collecting gas at a second position at lower side of the first position, and a third gas component of higher cooling capacity than the first and second gas components introduced into the tube collecting gas at a third position at lower side of the second position.

22. (Withdrawn) The manufacturing method for Co-Cr-Mo alloy fine wire of claim 21, wherein the first gas component is argon or helium, and the second gas component is oxygen or carbon dioxide.

23. (Original) A planar body formed by weaving, knitting or nonwoven processing of the Co-Cr-Mo alloy fine wire of claim 15.

24. (Original) A tubular body formed by weaving, knitting or nonwoven processing of the Co-Cr-Mo alloy fine wire of claim 15.

25. (Original) A stranded wire formed by processing of the Co-Cr-Mo alloy fine wire of claim 15.

26. (Original) A cable formed by processing of the Co-Cr-Mo alloy fine wire of claim 15.

XI. APPENDIX II: EVIDENCE

-- None --

XII. APPENDIX III: RELATED PROCEEDINGS

-- None --